

Claims

- [c1] 1. A liquid fuel rocket engine member (10) comprising:
a body having an axis of revolution and a cross section that varies in diameter along said axis, said body further comprising a wall structure having a plurality of cooling channels (11,19,20); and
an outside of the wall structure comprising a continuous sheet metal wall (14) and the cooling channels (11) being at least partly delimited by elongated elements (15,18,21) that are longitudinally attached to the inside of the sheet metal wall, the elongated elements (15,18) being mounted with mutual contact at the inlet end (12) of the member and with mutual distances at the outlet end (13) of the member.
- [c2] 2. The liquid fuel rocket engine member as recited in claim 1, further comprising:
a cross sectional area of each cooling channel being larger in a downstream end (13) of the channel than in an upstream end (12) of the channel.
- [c3] 3. The liquid fuel rocket engine member as recited in claim 1, further comprising:
a material thickness of the cooling channel wall being

larger in a downstream end (13) of the channel than in an upstream end (12).

- [c4] 4. The liquid fuel rocket engine member as recited in claim 1, further comprising:
a width of each of said cooling channels, in the circumferential direction of said engine member, being larger in a downstream end (13) of the channel than in an upstream end (12) of the channel.
- [c5] 5. The liquid fuel rocket engine member as recited in claim 1, further comprising:
the cooling channels (11) having a substantially similar cross section shape in a downstream end (13) of the channel as in an upstream end (12) of the channel.
- [c6] 6. The liquid fuel rocket engine member as recited in claim 1, further comprising:
each cooling channel (11) being formed by a sheet metal profile (18).
- [c7] 7. The liquid fuel rocket engine member as recited in claim 1, further comprising:
the cooling channels being formed by seamless tubes (15).
- [c8] 8. The liquid fuel rocket engine member as recited in claim 1, further comprising:

a distance between two adjacent elongated elements (15,18) at the outlet end (13) of the member (10) being filled with an insulating material (17).

- [c9] 9. The liquid fuel rocket engine member as recited in claim 1, further comprising:
the distance between two adjacent elongated elements (15,18) at the outlet end (13) of the member (10) being filled with a thermally conductive material (17).
- [c10] 10. The liquid fuel rocket engine member as recited in claim 1, further comprising:
at least one of said elongated elements (21) defining a plurality of cooling channels (22).
- [c11] 11. The liquid fuel rocket engine member as recited in claim 1, further comprising:
the elongated element (21) being formed by a plate-shaped base portion (23) and a plurality of flanges (24) projecting from said base portion, said cooling channels being formed between the base portion, adjacent flanges and said sheet metal wall.
- [c12] 12. A method for manufacturing a liquid fuel rocket engine member (10) comprising:
providing a body having an axis of revolution and a cross section that varies in diameter along said axis, and the

body having a wall structure comprising a plurality of cooling channels (11);
attaching a plurality of elongated elements to a curved sheet metal wall arranged to form the engine member, wherein the cooling channels are formed by at least said elongated elements and wherein the elongated elements (15,18) are mounted with mutual contact at the inlet end (12) of the member and with mutual distances at the outlet end (13) of the member.

[c13] 13. The method as recited in claim 12; further comprising:

forming a sheet metal wall (14) having a wall section corresponding to the desired member section.

[c14] 14. The method as recited in claim 12; further comprising:

defining the cooling channels by said sheet metal wall (14).

[c15] 15. The method as recited in claim 12; further comprising:

attaching the cooling channels (11) to the sheet metal wall (14) by welding from the outside of the wall.